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# Burlington highrise condo embraces green technology and city vibe

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GARY MAY

SPECIAL TO THE STAR

Kam Athwal is a 28-year-old first-time homebuyer who wants to live in a "green building." But as a newcomer to the housing market, price is definitely an issue. Athwal can't afford to go over budget, even to help save the environment.



SUPPLIED PHOTO

The kitchen in one of the model suites at Ironstone in Burlington.

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She wants a place that exudes the urban vibe of downtown living, but Toronto's core is not an option due to price and location — her telecommunications employer is situated near the Oakville/Mississauga boundary.

So when Athwal learned a highrise condominium project was going up at Appleby Line and Upper Middle Rd. in Burlington with a heating and cooling system that utilizes the solar power absorbed by the Earth, she decided to investigate. **Ironstone**, she discovered, is going to be a little piece of energy-saving urban chic set amidst suburban big box-store malls.

To achieve the downtown feel, Toronto architect Roland Rom Colthoff of **Raw Design** designed the building with street-level retail space, loft suites — some made for work-at-home residents — and a rooftop garden that aims to make Ironstone a catalyst to soften this little corner of suburbia.

Ironstone met Athwal's demands for living green. The builder, **Davies Smith Developments** of Toronto, explained to her the project's geothermal heating and cooling system doesn't need fossil fuels.

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Geothermal is a system that's little-known in North America but popular in areas of the world where fossil fuels come at a much higher price.

Athwal was intrigued, but admits she didn't know much about this seemingly straightforward technology.

"The condo wasn't too expensive, it would save me money on heat and air conditioning and I was doing something for the environment," she says. "That made me feel good."

Geothermal technology has been around for three decades, yet across North America, just 650,000 homes are equipped with system. Ironstone will be one of the first highrise residential condo buildings to use the technology in this country.

Geothermal reduces utility bills by up to 60 per cent by eliminating the need for a natural gas-fired heating system and cutting electricity use by 5 to 15 per cent compared to a traditional HVAC (heating, venting and air conditioning) system.

So why isn't it a lot more popular? Because it's expensive to install. A geothermal heat pump system can add \$25,000 to the price of a new home. Builders who offer the option have found buyers reluctant to spend that kind of money.

So when an energy services provider approached Davies Smith Developments with a plan to cover those upfront costs, company principals took notice.

Under the plan, the geothermal supplier would install the in-ground piping and distribution system. The developer would install distribution piping within the building, as well as the heat pump units in each suite and all common areas, for about \$300,000 to \$500,000, says Davies Smith partner Graham Chalmers.

A system that drastically reduces the need for fossil fuels — there will still be a conventional natural gas system to cover those occasional extremes of heat and cold — is popular with buyers, says Chalmers. He says the work can be done at a price that's acceptable in a project that will cost in the "mid-\$30-million range."

When a geothermal supplier is signed up, it will be offered a multi-year contract to let it recoup its upfront costs.

For buyers, "payback will be like paying a lease or car payments," Chalmers says. "The owners pay a monthly fee to pay down the debt. The cost is always a minimum of 10 per cent less than it would be if we were using a fossil fuel system."

Ironstone condo owners' payments will be rolled into regular monthly maintenance fees, which Chalmers estimates at 39 cents per square foot. Suites will range from 600 square feet to 1,100 square feet, says architect Rom Colthoff. Monthly fees for Athwal's 862-square-foot, \$277,000 suite would be \$336.18, which includes water and common area maintenance, but not cable and electricity.

**How does geothermal work?** Solar heat absorbed by the Earth means that below a depth of eight feet, a constant temperature of 10C is maintained year-round. To capture that heat, holes are bored deep into the ground and a loop constructed to accommodate specially designed pipe. Water or some other liquid runs through the pipe, picking up heat in winter and shedding it in the summer.

Geothermal heat pumps are installed inside the building to compress heat and convert it to usable warm air that is circulated to each suite. A heat exchanger brings the temperature to the required level. The system is reversed in summer when heat is transferred to the ground. Residents of each suite have their own thermostat to maintain their preferred temperature.

Ironstone will be Davies Smith Development's test case, says Chalmers. While the mechanics are well proven, "we might discover we've spent more than we intended. If it comes in close to what we expect, we might as well do this with our buildings."

Geothermal's introduction to North America has been a rocky one, primarily because fuel prices have been far lower here than in other parts of the world — too low to make the capital costs attractive.

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In 2008, a developer trumpeted plans for an entire community of detached bungalows at Inverlyn Lake near Kincardine, Ont., that would be fitted with geothermal heat pump systems. But high upfront costs caused sales to lag and so far only about 40 of 160 planned homes have been built. Of those, only half are fitted with geothermal, while many of the others feature less efficient systems.

Yet Inverlyn Lake residents who have geothermal say they like it. In fact, John Cushing hasn't paid a cent in conventional heating or air conditioning since he moved in to his home two years ago. And neither has neighbour Ron McKee, nor others with the same system.

"Sure, it costs more upfront to move in to a home that's served by geothermal," says Cushing. "But the savings keep on coming."

And, those savings should continue to mount. Geothermal customers won't face the same large spikes in hydro rates projected over the next few years, because they rely less on it.

McKee says it's hard to know for sure how much he's saved by having geothermal, but he knows that he pays just \$1,700 to \$1,800 a year for all of his 1,800-square-foot home's electricity needs.

Neither McKee nor Cushing has ever experienced a problem with their geothermal system. About all that could go wrong, says Davies Smith's Chalmers, is if a pump breaks. He says that's highly unlikely and at Ironstone they'd just switch to another pump until it's repaired.

Rom Colthoff says a conventional natural gas system will be installed to handle times of extreme heat and cold, but it's still anticipated utility costs will be at least 40 per cent below what would be expected from a conventional system.

**The limited popularity** of geothermal in North America is a result of "the cost issue for mainstream builders," says Julia Ramkerrysingh of EnerQuality Corp., which promotes sustainable choices as well as green and healthy building methods. "Builders are finding they can't always sell the most expensive models."

Rom Colthoff says he has designed two other geothermal projects — a Toronto community housing residence and an eco-education demonstration centre in Sundridge. He anticipates a lot more. "There's interest these days because the technology has improved quite a bit," he says.

The only special consideration he had to make in designing the building for geothermal energy was to incorporate sustainable and energy-saving features, he says, like providing increased shade at the southwest exposure and better insulation, which will reduce the load on the geothermal system.

The 210-suite Ironstone project is more than three-quarters sold and Chalmers says Athwal can look forward to a spring 2012 move-in date.

She can hardly wait.

Features aimed at creating that hip urban character include a street level commercial-retail space that will attract a café, greengrocer, shops and local services; a rooftop garden on top of the single level of above-ground parking (there are also two levels of below-grade parking for residents); and loft apartment units.

Despite sitting deep in suburbia, "it has a really great downtown feel about it," says Athwal.

The Ironstone sales office is located at 1940 Ironstone Dr., Burlington. Hours are Monday to Wednesday noon to 7 p.m.; Saturday and Sunday noon to 6 p.m.; and closed Thursday and Friday. For more information go to [www.ironstonecondominiums.com](http://www.ironstonecondominiums.com) or call 905-315-8100.

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